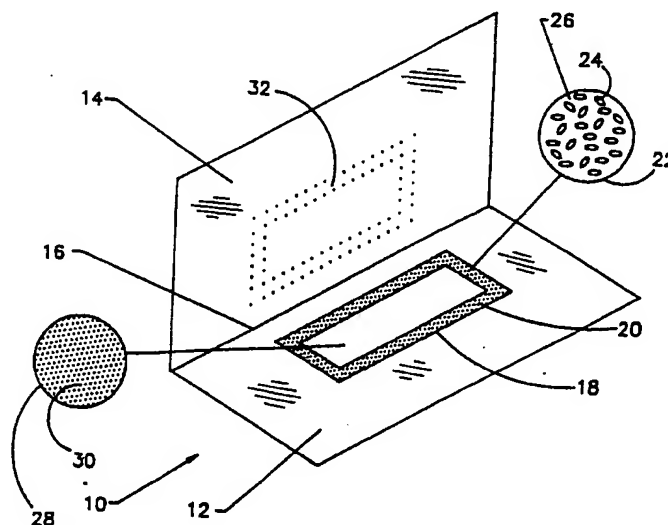




## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(21) International Application Number: PCT/US92/01314 (22) International Filing Date: 19 February 1992 (19.02.92) (30) Priority data: 656,431                      19 February 1991 (19.02.91)    US (71)(72) Applicants and Inventors: CARNAHAN, David, W. [US/US]; 311 Rosewood Lane, S.E., Cartersville, GA 30120 (US). ROSS, Jamie, S. [GB/US]; 4416 James Drive, Chattanooga, TN 37416 (US). MAURY, Richard, K. [US/US]; 917 Winding Hills Lane, Hixson, TN 37343 (US). AKINS, Gary, L. [US/US]; 1514 Heather Street, Chattanooga, TN 37412 (US).		(74) Agent: BEUMER, Joseph, H.; Phillips & Beumer, 1100 Jordan Lane, Suite K, Huntsville, AL 35816 (US). (81) Designated States: AT (European patent), BE (European patent), CH (European patent), DE (European patent), DK (European patent), ES (European patent), FR (European patent), GB (European patent), GR (European patent), IT (European patent), JP, LU (European patent), MC (European patent), NL (European patent), SE (European patent). Published With international search report.

(54) Title: FRAGRANCE SAMPLER WITH DUAL FRAGRANCE DELIVERY MEANS



## (57) Abstract

A fragrance sampling device (10) includes a central region (18) on which perfume-containing powder (30) is lightly adhered and peripheral regions (20) having an adhesively bonded layer containing rupturable microcapsules (24). The powder mixture in the central area may comprise a mixture of microcapsules and a sufficient amount of talc to provide the desired level of adhesion. The powder mixture may also comprise an inorganic powder such as talc onto which perfume oil has been absorbed. The sampler device thus provides a dual capacity for delivery of fragrances. The microcapsules in the outer periphery area are rupturable so as to release perfume upon tearing off the cover sheet, and further amounts of perfume may be released from the area by scratching or rubbing the exposed layer. The powder in the inner region loosely adheres to the substrate and encourages the user to remove a portion of the powder from the substrate to the skin so that the fragrance may be delivered away from the sample. In contrast to prior samplers which do not have a lightly adhered powder layer, the present sampler provides a powder in a form such as to be readily removable and which encourages the user to place it on the skin.

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**FRAGRANCE SAMPLER WITH DUAL FRAGRANCE DELIVERY MEANS****Field of the Invention**

This invention relates generally to fragrance  
5 samplers and more particularly to samplers having  
fragrance releasing particles carried on a substrate.

**Background of the Invention**

Fragrance samplers having perfume-releasing  
materials disposed on a substrate are well known in  
10 the prior art. In particular, samplers have been  
provided in a format in which perfume-containing  
material is disposed on a paper substrate of a  
magazine insert or direct mailer, with a removable  
cover sheet disposed for being pulled off by the  
15 recipient to gain access to the perfume. One approach  
to such a product is to incorporate perfume oil  
droplets in an inert wall material such as gelatin to  
obtain microcapsules ranging in size upward from a few  
microns. The microcapsules are typically disposed in  
20 a layer of an adhesive having a greater cohesive  
strength than the microcapsule walls so that when  
sheets bonded to the adhesive layer are pulled apart,  
the walls will be ruptured, producing an initial bloom  
of fragrance. After such initial release of  
25 fragrance, the recipient is invited to scratch the  
microcapsule-containing adhesive layer to obtain  
further fragrance release by rupture of additional  
microcapsules, hence the designation "scratch and  
sniff" for such products.

30 While effective for delivery of fragrance  
samples, samplers of the type referred to above do not  
encourage the recipient to rub the fragrance-  
containing material onto the skin owing to the texture  
of the adhesive layer which does not present a  
35 pleasant-feeling surface. Placement of a sample

portion on the skin of a prospective user is considered by perfume sellers as the most effective means of inducing sales so that a sampler which encourages such action would be highly desirable.

5       A sampler having fragrance-containing microcapsules disposed on a soft, compressible base sheet of material is disclosed in U.S. Patent No. 4,908,252, issued March 13, 1990, to Carnahan et al. That patent is concerned with soft compressible  
10       substrates that provide favorable tactile properties and not with samplers using coated papers of the type normally used for mass produced magazine inserts or direct mailers prepared by high-speed printing methods.

15       U.S. Patent No. 4,752,496, issued June 21, 1988, to Fellows et al. discloses a sampler wherein cosmetic powders, which may include fragrances, are formulated into a printable slurry including a film-forming agent. The slurry is applied as a coating to a  
20       central area of a paper substrate with peripheral layers around the substrate remaining uncoated. Bonding of the cover sheet of the substrate with a cover sheet occurs only in the peripheral areas, which are free of fragrance-containing material.

25       It is desired to provide a fragrance sampler that will produce an initial burst of fragrance as by rupture of microcapsules upon opening the sampler and which makes available to the user lightly adhered perfume-containing powder material in a format such as  
30       to invite and encourage the recipient to apply a sample of powder to the skin. The sample substrate and cover should comprise a material such as coated paper onto which advertising and graphic material as well as perfume-containing particles may be applied by  
35       mass-production methods such as printing. Another feature required for such samplers is that perfume-containing material be effectively sealed to prevent

premature release of fragrances while being handled in the mails and otherwise.

#### Summary of the Invention

The present invention is directed to a perfume sampler comprising a paper substrate having defined thereon a central region and adhesive regions at least partially enclosing said central region around its edges, the adhesive regions having deposited thereon an adhesive layer that includes rupturable perfume-containing microcapsules, and the central region having perfume-containing powder lightly adhered thereto and a cover sheet bonded to the substrate at the adhesive regions. The sampler may be sealed by providing adhesive regions that completely enclose the central region or by enclosing it completely except for along a line along which the cover sheet is folded, in which case the sampler is sealed by the adhesive regions in combination with the folded-over cover.

This sampler provides two mechanisms for delivery of fragrance. Microcapsules in the adhesive layer of the adhesive regions may be ruptured upon pulling the cover sheet off or by scratching the exposed adhesive layer, and the lightly adhered powder material is presented in a format such as to encourage the recipient to apply it to the skin for sustained release away from the sampler. Both the adhesive layer in the adhesive regions and the powder in the central region may be applied by printing methods amenable to mass production.

It is, therefore, an object of this invention to provide a fragrance sampler having one substrate region with rupturable, perfume-containing microcapsules disposed in an adhesive layer thereon and another substrate region with perfume-containing powder material lightly adhered to the substrate.

- 4 -

Another object is to provide such a fragrance sampler wherein the powdered perfume-containing material may be readily transferred to the skin of a user.

5 Another object is to provide a perfume sampler that includes a means for sealing of perfume-containing materials so as to prevent premature release.

10 Yet another object is to provide such a sampler in a form that may be manufactured by printing methods.

Other objects and advantages of the invention will be apparent from the following detailed description and the appended claims.

15 Brief Description of the Drawing

Fig. 1 is a pictorial view of a fragrance sampler with the cover in unfolded, open position and with portions shown enlarged.

20 Fig. 2 is a pictorial view of another sampler embodying the invention.

Description of the Preferred Embodiment

Referring to Fig. 1 of the drawings, there is shown a sampler 10 having a coated paper base sheet 12 and integral therewith a cover sheet along fold line 16. The base sheet has a central area 18 defined and enclosed by adhesive strips 20. As shown in enlarged region 22, the adhesive strips have perfume-containing microcapsules 24 deposited on an adhesive 26. Central area 18, as shown in enlarged region 28, has powder 30 lightly adhered to the base sheet. The sampler is shown after being opened by pulling the cover sheet loose, with remaining adhesive on the cover sheet being shown by dotted lines 32.

35 Fig. 2 shows a sampler 34 having a base sheet 36 and a cover sheet 38 integral therewith, folded along

line 40. A central area 42 is defined on the base sheet by adhesive strips 44 in a U-shaped pattern and by fold line 40. As depicted in enlarged region 46, the adhesive strips have perfume-containing microcapsules 48 deposited on an adhesive 50. The enclosed area 42 as shown in enlarged region 52 has perfume-containing powder 54 lightly adhered to the base sheet. Remaining adhesive on the cover sheet after being torn loose is shown by dotted lines 56.

10       The microcapsule-containing adhesive layer around the periphery of the enclosed area of the sample substrate may comprise microcapsules having droplets or globules of perfume oil encased by a wall of inert material such as gelatin and adhered to the substrate  
15       by adhesive action of the wall material itself or by a polymeric adhesive provided in a microcapsule slurry deposited on the substrate. Microcapsules for this purpose may be prepared by liquid bath encapsulation methods wherein perfume oil is emulsified by mixing  
20       with a gelatin solution in water, and the emulsion is combined with a coacervant such as an aqueous solution of gum arabic and a cross-linking agent which may be an aldehyde or organic titanate chelate as disclosed in co-pending application Serial No. 07/536,970, filed  
25       June 12, 1990, for "Microcapsules and Method of Preparation," assigned to a common assignee. The encapsulated perfume oil droplets may also include a stabilizing amount of ethyl cellulose to prevent loss of more volatile components as disclosed in co-pending  
30       application Serial No. 07/292,495, filed December 30, 1988, for "Stabilized Perfume-Containing Microcapsules and Method of Preparing the Same," also assigned to a common assignee. Microcapsules having walls made up of other polymeric material such as polyamides or  
35       urea- or melamine-formaldehyde copolymers or the like, as are known in the prior art, may also be used. The essential properties of the microcapsule-containing

- 6 -

layer for use in the present sampler are that it provides sufficient cohesive strength to hold the cover in place until pulled off and that the cohesive strength of the microcapsule walls is less than that of the adhesive so that the walls will be ruptured, releasing the fragrance upon pulling the cover away from the substrate. It is preferred to use microcapsules having gelatin walls and including a gum arabic coacervation agent which, when applied in the form of an aqueous slurry and allowed to dry, forms an adhesive layer with the required properties and does not require added polymeric adhesive, although such adhesives may be used if desired.

The lightly adhered powder provided on the central area of the substrate preferably comprises microcapsules of the same composition as provided in the adhesive layer but mixed with an inert powdered diluent such as talc to reduce the powder adhesiveness to a suitable level for the powder to be readily removed by lightly rubbing on the skin. A powder mixture comprising talc and microcapsules at a proportion of 1:1 to 3:1 and preferably 2:1 talc in proportion to the microcapsules may be used. Other diluent powders may be used in combination with microcapsules, in particular, powders of other inorganic material such as clay, titanium dioxide, diatomaceous earth or the like, or organic material such as starch, wax, microbeads of organosilicones, and pulverized polymers such as urea-formaldehyde. In addition to providing microcapsule-powder mixtures as described, powders obtained by absorbing unencapsulated perfume oil onto the powdered surface by soaking the powder with a perfume oil may also be used. Other types of particulate materials for containing the perfume oil may include dried matrix microcapsules, known as microspheres, microsponges or the like which have a capability for soaking up



perfume oil.

Although other types of substrates such as metal foils or plastic sheets may be used, the preferred substrate material for the sampler of this invention is coated paper of the type used for magazine inserts and direct mailers.

Application of adhesive microcapsule-containing layer to the peripheral regions and the powder material to the inner region may be carried out by conventional printing processes where the respective materials are applied as an aqueous slurry with sufficient fluidity to behave in the manner of an ink. In particular, pattern gluer devices incorporated on a web press may be used. A slurry of the powder material may be applied by transfer from a pad of a pattern gluer in a first pass through the press, with the adhesive layer being applied around the periphery of the substrate in a second pass through a second pattern gluer. Other methods of applying the powder such as by silk screening may also be used. After applying the powder material, the cover sheet is folded over to bond with the substrate at the regions to which adhesive has been applied, and the sampler is allowed to dry. Other materials such as pigments may be incorporated in the powder material to produce desired color effects.

The invention is illustrated by the following examples.

#### EXAMPLE 1

To 15.6 kilograms of deionized water 4.95 kilograms of talc powder, 2.9 kilograms of perfume-containing, gelatin-walled microcapsules containing fine fragrance oil, and 0.22 kilograms gold pigment was added. After thorough mixing, the resulting slurry was pumped into a pattern gluer incorporated on a web press. Also a slurry of gelatin-walled

- 8 -

microcapsules was pumped into an additional second pattern gluer. As the paper web passed through the first pattern gluer, the powder was applied to the inner portion of the paper web by means of transfer with a flexo pad, producing a strip of powder on the web. The web continued through the second pattern gluer wherein the slurry of gelatin-walled microcapsules without powder was applied as a frame around the powder strip. The web was then folded, causing a bond between the cover sheet and the substrate. After drying of the sampler, it was opened by tearing off the cover sheet so that microcapsules were broken in the frame area, releasing a burst of fragrance. Also observed was the release of powder from the center of the frame.

#### EXAMPLE 2

A sampler having perfume-containing powder disposed within an enclosed area and secured by an adhesive frame area including microcapsules in the adhesive was prepared as follows. To 5.1 grams of talc powder was added 17.8 grams of deionized water, 2.5 grams of microcapsules containing fragrance and 0.25 grams of gold pigment dispersed therein. After being thoroughly mixed, the powder mixture was applied to 70-pound sterling web gloss paper by silk screen application. Using a flexo pad, a frame of 0.5 grams of fugative glue and 0.15 grams of urea-formaldehyde microcapsules was applied around the edges of the powder region.

#### EXAMPLE 3

The following procedure was used to produce a dry removable powder sample with an adhesive frame. To 5.1 grams of talc powder was added 17.8 grams of deionized water, 2.5 grams of fragrance oil, and 0.25 gram of gold pigment. After thorough mixing, the

- 9 -

powder mixture was applied to 70-pound sterling web gloss paper by silk screen application. Using a flexo pad, a slurry of gelatin-walled microcapsules containing fragrance oil was applied around the powder strip to seal the powder into a pocket.

#### EXAMPLE 4

Example 3 was followed except for the following changes. The frame around the powder strip consisted of 0.5 gram of fugative glue and 0.15 gram of urea formaldehyde-walled microcapsules containing fragrance oil applied in place of the gelatin-walled microcapsules.

#### EXAMPLE 5

A sampler containing urea-formaldehyde microcapsules in the talc and adhesive frame was prepared as follows. To 5.1 grams of talc 17.8 grams of deionized water, 2.5 grams of urea-formaldehyde microcapsules containing fragrance oil, and 0.25 grams of pigment was dispersed. After being thoroughly mixed, the powder mixture was applied to 70-pound sterling web gloss paper by silk screen application. To 0.5 grams of fugative glue, 0.15 grams of urea-formaldehyde microcapsules containing fragrance oil was added. Using a flexo pad, a frame of fugative glue with urea formaldehyde microcapsules containing fragrance oil was applied around the powder strip to seal the powder into a pocket.

#### EXAMPLE 6

Example 1 was followed except for the following changes. The second pattern gluer applied the slurry to make a three-sided picture frame. Consequently, the fourth side of the picture frame was produced when the web was folded. The powder slurry was held in place and was not released from the center of the

frame.

The above examples are merely illustrative and are not to be considered as limiting the scope of the invention, which is limited only as indicated by the  
5 appended claims.

- 11 -

Claims

1. A fragrance sampler comprising:  
a paper substrate having on one side thereof a  
central region and peripheral edge region enclosing  
5 the central region;  
an adhesive layer containing rupturable perfume-  
containing microcapsules bonded to said peripheral  
edge regions;  
a lightly adhering layer of perfume-containing  
10 powder disposed on said central region; and  
a cover sheet enclosing said substrate and bonded  
to said peripheral regions.
2. A fragrance sampler as defined in claim 1  
wherein said 2 microcapsules comprise perfume oil  
15 droplets encased by gelatin 3 walls including a gum  
arabic coacervant.
3. A fragrance sampler as defined in claim 1  
wherein said powder comprises perfume containing  
microcapsules mixed with an inorganic powder diluent.
- 20 4. A sampler device as defined in claim 3  
wherein said diluent comprises talc.
5. A sampler device as defined in claim 4  
wherein talc is provided at a ratio of 1:1 to 3:1 with  
respect to said microcapsules.
- 25 6. A sampler device as defined in claim 5  
wherein said ratio is 2:1.
7. A sampler device as defined in claim 1  
wherein said adhesive layer and said powder are  
applied to said substrate in the form of an aqueous  
30 slurry.
8. A sampler device as defined in claim 7

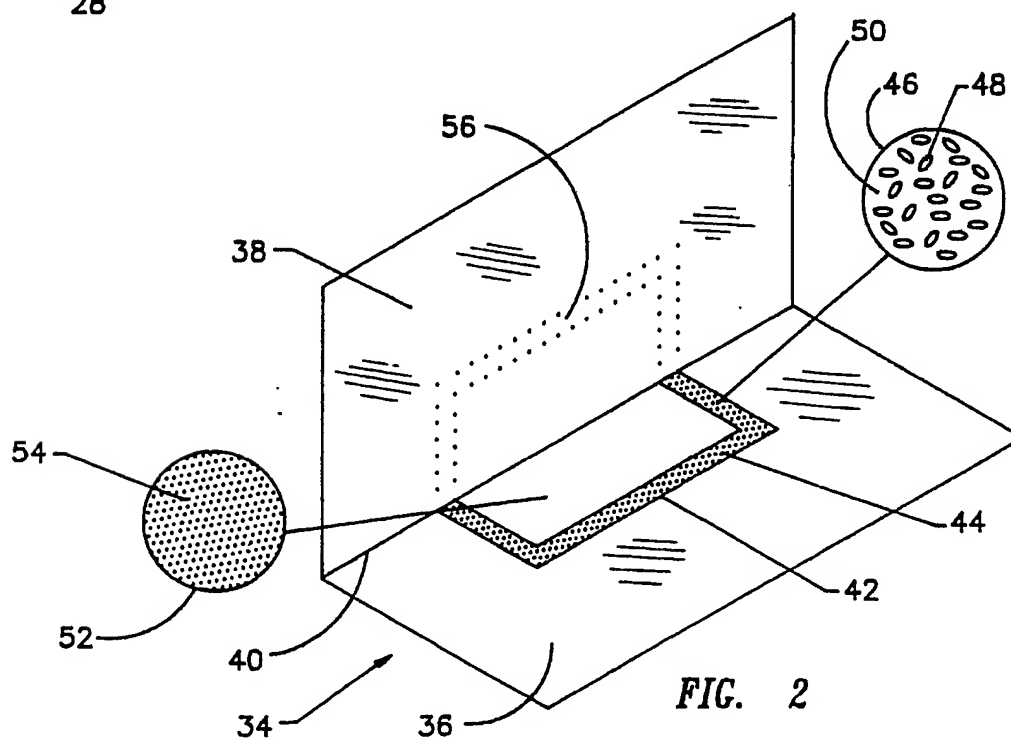
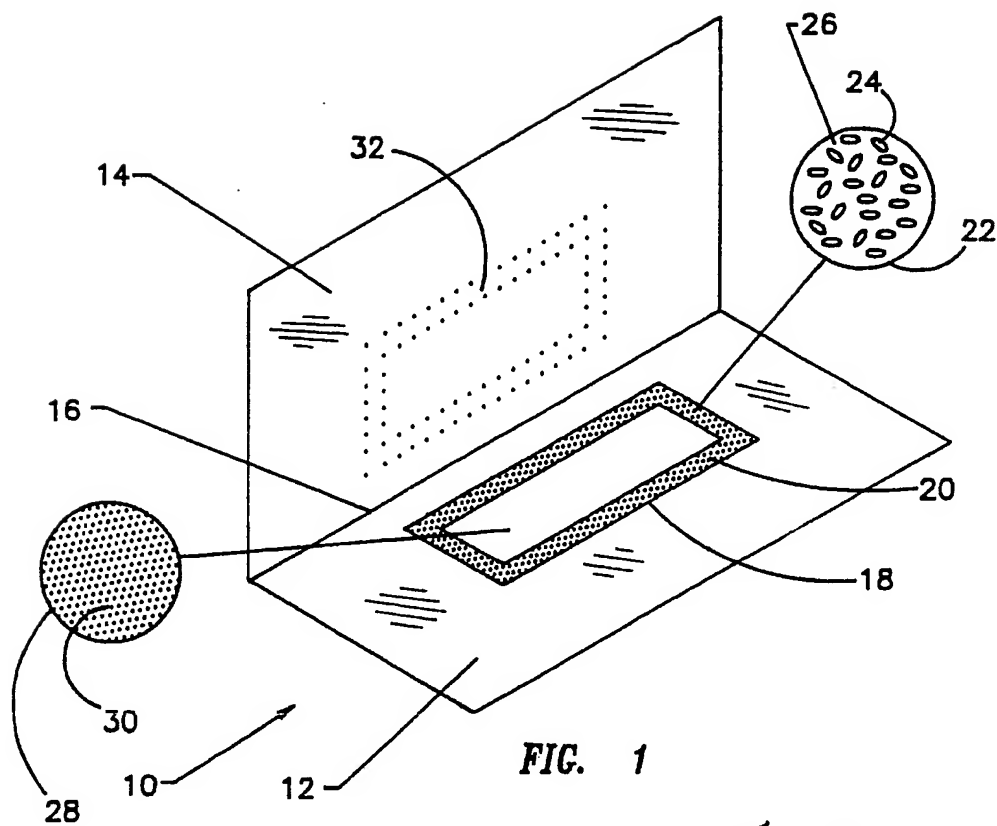
- 12 -

wherein said slurry is applied by printing.

9. A sampler device as defined in claim 8 wherein said adhesive layer includes a polymeric adhesive.

- 5        10. A sampler device comprising:
- a paper substrate foldable along a fold line defining a base sheet and a cover sheet;
- a central region on said base sheet enclosed and defined by a portion of said fold line and by edge
- 10       regions extending away from said fold line;
- an adhesive layer including rupturable, fragrance-containing microcapsules bonded to said edge regions;
- a lightly adhering layer of fragrance-containing
- 15       powder disposed on said central region; and
- said cover sheet being bondable to said edge regions when folded shut.

1/1



# INTERNATIONAL SEARCH REPORT

International Application No. PCT/US92/01314

<b>I. CLASSIFICATION OF SUBJECT MATTER</b> (If several classification symbols apply, indicate all) * According to international Patent Classification (IPC) or to both National Classification and IPC IPC (5): B32B 23/02 U.S. CL. 428/194																										
<b>II. FIELDS SEARCHED</b> <div style="text-align: center; font-size: small;">Minimum Documentation Searched ?</div> <table style="width: 100%; border: none;"> <tr> <td style="width: 30%; border: none;">Classification System</td> <td style="border: none;">Classification Symbols</td> </tr> <tr> <td style="border: none; padding: 5px;">U.S.</td> <td style="border: none; padding: 5px;">428/194, 320.2; 321.5, 905</td> </tr> </table> <div style="text-align: center; font-size: x-small; margin-top: 5px;">Documentation Searched other than Minimum Documentation to the extent that such documents are included in the fields searched *</div>			Classification System	Classification Symbols	U.S.	428/194, 320.2; 321.5, 905																				
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<b>III. DOCUMENTS CONSIDERED TO BE RELEVANT *</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%; font-size: x-small;">Category *</th> <th style="width: 60%; font-size: x-small;">Citation of Document, *1, with indication, where appropriate, of the relevant passages *2</th> <th style="width: 30%; font-size: x-small;">Relevant to Claim No. *3</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">X</td> <td>US, A, 4,952,400 (TARARUJ ET AL) 28 AUGUST 1990 See entire document.</td> <td style="text-align: center;">1-10</td> </tr> <tr> <td style="text-align: center;">X</td> <td>US, A, 4,988,577 (CHARBONNEAU) 29 JANUARY 1991 See entire document.</td> <td style="text-align: center;">1-10</td> </tr> <tr> <td style="text-align: center;">Y</td> <td>EP, A, 0 385 771 (DIXONWEB PRINTING CO.) 05 SEP-TEMBER 1990; See column 3, line 9 through column 4, line 10.</td> <td style="text-align: center;">1-10</td> </tr> <tr> <td style="text-align: center;">A</td> <td>US, A, 4,243,224 (SPECTOR) 06 JANUARY 1981 See entire document.</td> <td style="text-align: center;">1-10</td> </tr> <tr> <td style="text-align: center;">A,P</td> <td>US, A, 5,018,974 (CARNAHAN ET AL) 28 MAY 1991 See entire document.</td> <td style="text-align: center;">1-10</td> </tr> <tr> <td style="text-align: center;">A</td> <td>US, A, 4,802,626 (FORBES ET AL) 07 FEBRUARY 1989 See entire document.</td> <td style="text-align: center;">1-10</td> </tr> <tr> <td style="text-align: center;">Y</td> <td>US, A, 4,889,755 (CHARBONNEAU) 26 DECEMBER 1989 See column 2, lines 28 - 61, column 3, lines 1 - 13, and column 5, lines 27 - 43.</td> <td style="text-align: center;">1-10</td> </tr> </tbody> </table> <div style="font-size: x-small; margin-top: 10px;"> <p>* Special categories of cited documents: *0</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&amp;" document member of the same patent family</p> </div>			Category *	Citation of Document, *1, with indication, where appropriate, of the relevant passages *2	Relevant to Claim No. *3	X	US, A, 4,952,400 (TARARUJ ET AL) 28 AUGUST 1990 See entire document.	1-10	X	US, A, 4,988,577 (CHARBONNEAU) 29 JANUARY 1991 See entire document.	1-10	Y	EP, A, 0 385 771 (DIXONWEB PRINTING CO.) 05 SEP-TEMBER 1990; See column 3, line 9 through column 4, line 10.	1-10	A	US, A, 4,243,224 (SPECTOR) 06 JANUARY 1981 See entire document.	1-10	A,P	US, A, 5,018,974 (CARNAHAN ET AL) 28 MAY 1991 See entire document.	1-10	A	US, A, 4,802,626 (FORBES ET AL) 07 FEBRUARY 1989 See entire document.	1-10	Y	US, A, 4,889,755 (CHARBONNEAU) 26 DECEMBER 1989 See column 2, lines 28 - 61, column 3, lines 1 - 13, and column 5, lines 27 - 43.	1-10
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<b>IV. CERTIFICATION</b> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;">Date of the Actual Completion of the International Search</td> <td style="width: 50%; border: none;">Date of Mailing of the International Search Report</td> </tr> <tr> <td style="border: none; padding: 5px;">14 APRIL 1992</td> <td style="border: none; padding: 5px;">11 MAY 1992</td> </tr> </table> <table style="width: 100%; border: none; margin-top: 10px;"> <tr> <td style="width: 50%; border: none;">International Searching Authority</td> <td style="width: 50%; border: none;">Signature of Authorized Officer</td> </tr> <tr> <td style="border: none; padding: 5px;">ISA/US</td> <td style="border: none; padding: 5px;">Jill M. Gray </td> </tr> </table>			Date of the Actual Completion of the International Search	Date of Mailing of the International Search Report	14 APRIL 1992	11 MAY 1992	International Searching Authority	Signature of Authorized Officer	ISA/US	Jill M. Gray																
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